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Notes on the nesting behaviour of *Acrocephalus aequinoctialis*

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The Bokikokiko, or Christmas Island Warbler, *Acrocephalus aequinoctialis* is endemic to the Line Islands and the papers by Gallagher (1960), Clapp & King (1975) and Schreiber (1979) are the only published sources of information on this species. While on Christmas Island (2°N, 157°W), central Pacific Ocean, between 12 and 21 July 1980 we recorded observations on nestling behaviour, behaviour of adults while feeding, and flight and prey capture by adults of this species.

On 12 July 1980 Milder discovered a nest containing four nestlings estimated as 5-7 days old. The nest was located c. 2 m off the ground on the mainland side of a 5 m tall Beach Heliotrope *Messerschmidia argentea* on the beach crest. Finding the nest was easy because the young called frequently when left alone by the parents, and the duration, intensity, and volume of calling increased when parents arrived at the nest. Both parents fed the young, and the nest was visited on an average of once every 2.5 minutes during the 6.5 hours of observation (Figure 1) during 9 days which covered all times of

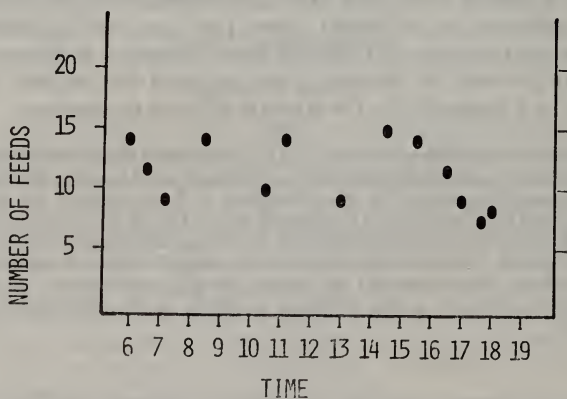


Fig. 1. Number of feedings per half hour by adult *Acrocephalus aequinoctialis*. Sunrise (06.30), sunset (18.30).

day. This feeding rate is similar to that recorded for continental nesting passerines of similar size (Pringle 1977, Henry 1977, Skutch 1960). Faecal sacs were carried away from the nests by adults and none was observed being eaten.

Although lizard tails (geckos, *Lepidodactylus lugubris* and *Hemidactylus frenatus*) were also fed to the young (Schreiber 1979), the main food item we noted brought to nestlings was houseflies (*Musca domestica*). This nest was located about 100 m from a garbage dump where flies were present in large numbers. Bokikokiko adults flew to the dump and caught flies by running-hopping after them. After catching 1-3 flies ($n=10$ observations) the adult would return to the nest and feed one or more young. The parent birds called frequently. On 20 July a feral domestic cat was at the dump when an adult came to feed. A loud call was given by the mate from a bush next to the dump and the feeding bird flew from the dump to the bush and landed near its mate and both called loudly.

On the afternoon of 17 July, 4 nestlings were present; on the next morning only 2 remained; one more departed that afternoon, and all 4 chicks were in the bush within 2 m of their nest on 19th and 20th. On 18th we approached closely and one of the chicks fell to the ground. It hopped with apparent dexterity from twig to twig until it had climbed to near the nest. The parents continued to feed their chicks after all were out of the nest. Four days after fledging, the young continued to hop about the bush. We observed no flying and no feeding on their own at this stage, but they hopped from twig to twig and fluttered for short distances (maximum 20 cm) between twigs. Nestlings stretched legs and wings, and preened, but we never observed "practice flying".

Flight of the adults, as noted by Gallagher (1960), is not strong and was mostly level or on a descending glide, with intermittent shallow, laboured wing beats. When the parents returned to the nest-bush they flew into the bush at a height of c. 1 m, then hopped from branch to branch up to the nest. On leaving the nest they would hop to the upper portions of the bush and take flight. We never saw an adult in level flight above 3 m from the ground and in fact, level flight was unusual and only over short distances (20-30 m). Flight higher and longer than that usually involved descent from the upper portions of a bush.

Insufficient data exist at present to determine a breeding season for this species on Christmas Island. However, in July 1980, in the 20 hectares surrounding the Captain Cook Hotel we located 6 pairs of birds, all of which seemed to be maintaining territories, pair members remaining in close communication with each other. We could find these pairs consistently in certain locations but did not observe any interterritorial behaviour. No other nests were found and the nest we observed was the only one that could have had a garbage dump inside its territory. Perhaps this food source allowed this particular nesting in June-July. Future observations will be needed to determine if these birds maintain permanent territories, what type of pair bond is maintained, how dispersal is effected, and what controls the timing of their breeding season.

On 17 July we mist-netted one adult at 18.00 hrs. It weighed 19.0 g, the exposed culmen measured 15 mm, the tarsus 30 mm, and unflattened wing chord 70 mm.

The prime factors limiting the population of this island dwelling bird are its food supply and the nest sites. The introduced cats and rats do not appear to be a factor and no competing passerine is present. Christmas Island Warblers apparently nest only in *Messerschmidia argentea*, which has branches extending to the ground, probably because it enables hopping easily from the low branches to the top of the tree. Nest site availability is probably, however, not a problem for the warbler, since the bushes are abundant on the island, though mature bushes of the proper configuration may be limited. An increase in garbage dumps, with its attendant growth of fly populations, will be beneficial in the short term to the species; but with the increasing human population, this fascinating island species will undoubtedly suffer in the long run.

We have made a small step toward elucidating the biology of this isolated species. Clearly, further studies on all aspects of its biology are needed to further understanding of the effects of isolation and the lack of native predators and competitors on its behaviour. Additionally, studies of its anatomy and flight capability are needed and the time to worry about its population size is now.

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First sight record of the Spotted Dove *Streptopelia chinensis* from Luzon and a summary of its range expansion in the Philippines by G. P. Waldbauer & Susan M. Waldbauer

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The rapid range expansion of the Spotted Dove *Streptopelia chinensis* in the Philippines was discussed by Rabor (1959), duPont & Rabor (1973a, b) and Parkes (1973). DuPont & Rabor (1973b) offered the most detailed account but did not cite published records of the distribution of this species.

Since about the third decade of this century *S. chinensis* has been moving north and east through the Philippines from its original footholds on the